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"HYPNOTIC-LIKE" SUGGESTIBILITY IN CHILDREN AND ADULTS [1]

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724 Ss of ages 6–22 were told that they were to be tested for imaginative ability, and were then given 8 standardized test suggestions as follows: Arm Lowering, Arm Levitation, Hand Lock, Thirst "Hallucination," Verbal Inhibition, Body Immobility, "Posthypnotic-Like" Response, and Selective Amnesia. The sexes did not differ in response to the suggestions. Ss between 6 and 12 were more "suggestible" than adults. Children of 8–10 showed the highest level of response. No differences in "suggestibility" were found among Ss of ages 14–22. Suggestibility in both children and adults was inversely related to "conscious" (verbalizable) resistance to the test suggestions.

A consensus exists that children are more responsive than adults to the type of suggestions that have been historically associated with the word "hypnosis." This consensus is based on a number of older studies, summarized by Weitzenhoffer (1953, 1959) and Tromator (1961), which used varying criteria of "suggestibility" or "hypnotizability" and which were conducted under nonstandardized conditions. To our knowledge, children and adults were assessed on responses to a series of suggestions of the type associated with the word hypnosis in only two experimental studies performed under carefully standardized conditions. In one of these studies, presented by Stukát (1958), three standardized tests of "primary" or "hypnotic-like" suggestibility—body sway, arm lowering, and Chevreul pendulum—were administered to a large group of subjects of different age levels. This worker, however, presented his results separately for the children and the adults and failed to make a direct comparison between the two groups. In the second study, presented by London (1962a, 1962b), 57 subjects of ages 6–16 were assessed on the Stanford Hypnotic Susceptibility Scale as revised and adapted for children. The 6–16 age group was found to be more responsive to the test suggestions than 124 college students. Three considerations, however, suggest caution in drawing conclusions from the London study: only a small number (4–6 subjects) were tested at each age level from 6 to 16; the younger subjects were tested by investigators at Illinois while the college students were tested by other investigators at Stanford; the younger subjects were "volunteered" by their parents to be "hypnotized" and this selection process may have rendered the sample unrepresentative of American children.

To formulate a general theory of "hypnotic behavior," reliable data are required concerning the development of "hypnotic-like" suggestibility. It is extremely difficult, however, to obtain such data if children and their parents and teachers are told that hypnosis is to be employed and if a "trance induction procedure" is actually used. Few parents and teachers are willing to permit their children or their pupils to be hypnotized and if some subjects are obtained by this method it appears unlikely that they will constitute a representative sample. It is possible, however, to approach the problem

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by assessing response to suggestions *without* formally defining the situation as hypnosis and *without* administering a formal trance induction procedure. Employing this method, we were able to secure a large group of middle-class American children and adults as experimental subjects. The investigation was conducted as follows.

METHOD

Subjects

The subjects were 724 students (388 males and 336 females) of ages 6–22. Of these 484 were elementary school students (ages 6–13); 119 were high school students (ages 14–17); and 121 were college students and nursing students (ages 18–22). The number of subjects in each subgroup, classified in terms of year in school, approximate age, and sex, is presented in Table 2 (Columns 1–3).

All subjects were of the Caucasian race. The elementary and high school students resided in middle-class suburbs composed primarily of professional people, white-collar workers, and skilled technicians; with a few possible exceptions, the college students and nursing students also came from middle-class backgrounds.

None of the subjects were volunteers. The elementary school students participated routinely after arrangements for the experiment were made with the school principal and with the teachers of each class. The high school students were selected at random from study hall classes after arrangements were made with the high school principal and with the study hall teachers. The college students participated in the experiment to fulfill the requirements of a course in elementary psychology. The nursing students were secured by arrangements made with the nursing supervisor.

Assessment of Response to Suggestions

All subjects, and all teachers and school administrators, were told that a test of imagination was to be administered. All subjects were tested in individual sessions by one experimenter (DSC). Each experimental session subsumed a period of about 10–12 minutes. The experimental sessions were held in one room at each school provided by the school administrator. During regular school hours, the subjects were sent to the experimental room one at a time by the teachers.

Children of ages 6–7 were given the following preliminary instructions:

> We are going to play a game of imagination or make-believe. I want you to close your eyes and to keep them closed and to think about what I say.

The other subjects (ages 8–22) were instructed as follows:

> I am going to test your ability to imagine. Since you can imagine better with your eyes closed, I want you to close your eyes and to keep them closed and to try to imagine the things I say.

Immediately following the above instructions each subject was tested individually on response to the Barber Suggestibility Scale.[2] This scale includes eight standardized test suggestions, administered as follows:

1. Arm Lowering

Hold your right arm straight out in front of you like this. [The experimenter guides the subject to extend the right arm directly in front of the body at shoulder height and parallel to the floor.] Concentrate on your arm and listen to me.

[Begin timing] Imagine that your right arm is feeling heavier and heavier, and that it's moving down and down. It's becoming heavier and heavier and moving down and down. It weighs a ton! It's getting heavier and heavier. It's moving down and down, more and more, coming down and down, more and more; it's heavier and heavier, coming down and down, more and more, more and more. [End 30 seconds]

You can relax your arm now.

Scoring criterion: 1 point for response of 4 inches or more.

2. Arm Levitation

Keep your eyes closed and put your left arm straight out in front of you in the same way. Concentrate on your arm and listen to me.

[Begin timing] Imagine that the arm is becoming lighter and lighter, that it's moving up and up. It feels as if it doesn't have any weight at all, and it's moving up and up, more and more. It's as light as a feather, it's weightless and rising in the air. It's lighter and lighter, rising and lifting more and more. It's lighter and lighter and moving up and up. It doesn't have any weight at all and it's moving up and up, more and more. It's lighter and lighter, moving up and up, more and more, higher and higher. [End 30 seconds]

You can relax your arm now.

Scoring criterion: 1 point for response of 4 inches or more.

3. Hand Lock

Keep your eyes closed. Clasp your hands together tightly. [Experimenter explains interlacing the fingers of both hands with palms together.] Put them in your lap. Concentrate on your hands and hold them together as tightly as you can.

[Begin timing] Imagine that your hands are two pieces of steel that are welded together so that it's impossible to get them apart. They're stuck, they're welded, they're clamped. When I

[2] The Barber Suggestibility Scale, which was originally constructed by adapting items and adding new items to two scales previously used by Barber (1956a, 1956b, 1956c, 1957a, 1960) has also been used in other recent studies (Barber & Calverley, 1962, 1963, in press; Barber & Glass, 1962; Barber & Hahn, 1962, 1963; Glass & Barber, 1961).

ask you to pull your hands apart they'll be stuck and they won't come apart no matter how hard you try. They're stuck together; they're two pieces of steel welded together. You feel as if your fingers were clamped in a vise. Your hands are hard, solid, rigid! The harder you try to pull them apart the more they will stick together! It's impossible to pull your hands apart! The more you try the more difficult it will become. Try, you can't. [End 45 seconds]

[5-second pause] Try harder, you can't. [10-second pause] You can unclasp your hands now.

Scoring criteria: ½ point for incomplete separation of hands after 5-second effort; 1 point for incomplete separation after 15-second effort.

4. Thirst "Hallucination"

Keep your eyes closed.

[Begin timing] Imagine that you've just finished a long, long walk in the hot sun. You've been in the hot sun for hours, and for all that time you haven't had a drink of water. You've never been so thirsty in your life. You feel thirstier and thirstier. Your mouth is parched, your lips are dry, your throat is dry. You have to keep swallowing and swallowing. You need to moisten your lips. [3-second pause] You feel thirstier and thirstier, drier and drier. Thirstier and thirstier, dry and thirsty. You're very, very thirsty! Dry and thirsty! Dry and thirsty! [End 45 seconds] Now, imagine drinking a cool, refreshing glass of water. [5-second pause]

Scoring criteria: ½ point if subject shows swallowing, moistening of lips, or marked mouth movements; additional ½ point if the subject indicates during the "post-experimental" questioning that he became thirsty during this test.

5. Verbal Inhibition

Keep your eyes closed.

[Begin timing] Imagine that the muscles in your throat and jaw are solid and rigid, as if they're made of steel. They're so solid and rigid, that you can't speak. Every muscle in your throat and mouth is so tight and so rigid that you can't say your name. The harder you try to say your name the harder it becomes! You can't talk! Your larynx has tightened up; your throat and jaw feel as if they are in a vise. Your throat is clamped so tightly that you can't talk; you can't say your name. The harder you try the harder it will be. It's useless, the words won't come out; you can't speak your name; it's impossible to talk! The harder you try to say your name the harder it will become. Try, you can't! [End 45 seconds]

[5-second pause] Try harder; you can't. [10-second pause] You can say your name now.

Scoring criteria: ½ point if the subject does not say his name after 5-second effort; 1 point if he does not say his name after 15-second effort.

6. Body Immobility

Keep your eyes closed.

[Begin timing] Imagine that for years and years you've been sitting in that chair just as you are now. Imagine that you've been sitting in that chair so long that you're stuck to it! It's as if you're part of the chair. Your whole body is heavy, rigid, solid and you weigh a ton. You're so heavy that you can't budge yourself. It's impossible for you to stand up, you're stuck right there! Your body has become part of the chair. When I ask you to stand up you won't be able to do it! You're stuck tight. The harder you try the tighter you'll be stuck and you won't be able to get up. You're heavy in the chair! Stuck in the chair; you can't stand up. You're so heavy and stuck so tight. You can't stand up; you're stuck. Try, you can't! [End 45 seconds]

[5-second pause] Try harder; you can't. [10-second pause] You can relax [or sit down] now.

Scoring criteria: ½ point if the subject is not standing fully erect after 5-second effort; 1 point if not standing fully erect after 15-second effort.

7. "Posthypnotic-Like" Response

[Begin timing] When this experiment is over in a few minutes and your eyes are open, I'll click like this [experimenter taps once on the metal back of a stopwatch with a fountain pen] and you'll cough automatically. At the moment I click [experimenter presents auditory stimulus] you'll cough. It will happen automatically. When I click like this [experimenter presents auditory stimulus] you'll cough immediately; I'll click and you'll cough. When your eyes are open I'll click [auditory stimulus is presented] and you'll cough. When I click you'll cough. [End 30 seconds]

Scoring criterion: 1 point if subject coughs or clears his throat "post-experimentally" when presented with the auditory stimulus.

8. Selective Amnesia

Your eyes are still closed but I'm going to ask you to open them in a minute. When they're open I'm going to ask you to tell me about these tests.

[Begin timing] You'll remember all the tests and be able to tell me about them, all except for one. There's one that you'll completely forget about as if it never happened! That's the one where I said your arm was becoming lighter and moving up and up. You'll forget all about that and when you try to think about it, it will slip even further away from your mind. You will forget completely that I told you that your arm was becoming lighter. This is the one test that you cannot remember! You will remember that I said your arm was heavy and all the other tests will be perfectly clear but the harder you try to remember that I told you your arm was rising the more difficult it will become. You will not remember until I give you permission by saying, "Now you can remember," and then, and only then, you will remember that I said your arm was rising. [End 45 seconds]

Scoring criterion: 1 point if the subject does not refer to the amnesic task (Test Suggestion 2) but recalls at least four other test suggestions and then verbalizes Test Suggestion 2 (Arm Levitation) in response to the cue words.

"Post-experimental" scoring of Test Suggestions 4, 7, and 8. The subject is next told: "Open your eyes, the experiment is over." After the subject has opened his eyes and before conversation commences, the experimenter scores Test Suggestion 7 ("Posthypnotic-Like" Response) by presenting the auditory stimulus.

Test Suggestion 8 (Selective Amnesia) is then scored as follows: The experimenter asks: How many of the tests can you remember?" The experimenter prompts the subject by asking, "Were there any others?" "Can you think of any more?" and "Is that all?" until the subject mentions at least four of the test suggestions. If the subject verbalizes Test Suggestion 2 (Arm Levitation) during his recital, he receives a score of 0 on Test Suggestion 8 (Selective Amnesia). If the subject does not include Test Suggestion 2 in his enumeration, the experimenter states, "Now you can remember," and, if the subject still does not verbalize Test Suggestion 2, "You can remember perfectly well now!" The subject receives a score of 1 point on Test Suggestion 8 (Selective Amnesia) if he mentions at least four of the test suggestions, but does not mention Test Suggestion 2 before he is given the cue words, and verbalizes Test Suggestion 2 when given the cue words, "Now you can remember," or, "You can remember perfectly well now!"

The final scoring of Test Suggestion 4 (Thirst "Hallucination") occurs when the subject refers to this test suggestion during his recital. At this point the experimenter asks: "Did you become thirsty during this test?" If the subject answers Yes to this question he receives the additional ½ point on Test Suggestion 4. If the subject answers Yes but adds a qualifying statement, e.g., he had been thirsty to begin with, he is asked: "Did the imaginary glass of water help quench your thirst?" If the subject now answers Yes he receives the additional ½ point.

The maximum score obtainable on the test suggestions was 8 points.[3]

Subjective Reports

After the test suggestions were scored, all subjects were asked two questions orally:

1. Subjective Involvement

Which of these tests [test suggestions passed] did you actually feel? [The experimenter describes the test suggestions that the subject had passed with either ½ or 1 point and asks, e.g., with respect to Test Suggestion 3, "Did you actually feel that you couldn't take your hands apart or did you keep your hands together in order to follow instructions or to please me?"]

Scoring criterion: 1 point for each test suggestion passed which the subject claimed that he had "actually felt."

2. Verbalized Resistance

Which of these eight tests did you try to resist? [The experimenter describes each of the test suggestions and asks, e.g., with respect to Test Suggestion 1, "Did you try to keep your arm from coming down?"]

Scoring criterion: 1 point for each of the eight test suggestions which the subject said that he had attempted to resist.

After these questions were answered, the subject was admonished not to discuss the experiment with the other subjects and was then dismissed.

Retest

Twelve subjects of age 7, 22 subjects of age 10, and 29 subjects of ages 18–22 were retested individually on the Barber Suggestibility Scale after an interval of 6 weeks.

Analyses of Data

To attain a minimum of 50 subjects in each subgroup, the scores of subjects of the following ages were combined: 6–7, 14–15, 16–17, and 18–22. Separate two-way analyses of variance for unequal subclasses were performed on the test suggestions and on the subjective reports by the approximation method presented by Walker and Lev (1953, pp. 381–382). Duncan's (1957) multiple range test for unequal subclasses was used to compare the group means.[4] Product-moment coefficients of correlation were computed between scores on the test suggestions (Objective scores) and Verbalized Resistance scores, between Subjective Involvement scores and Verbalized Resistance scores, and between test-retest scores.

RESULTS AND DISCUSSION

Sex Differences

The analyses of variance, summarized in Table 1, indicate that the sexes did not differ significantly in response to the test suggestions and in subjective reports. Since no sex differences were found, the scores for males and females at each age level were combined giving the resultant means in Table 2.

Age Differences

The analyses of variance (Table 1) show highly significant differences between age

[3] The Barber Suggestibility Scale was administered as described above to all subjects with the exception that, for the elementary school students, the following substitutions were made in Test Suggestion 3 (Hand Lock) and Test Suggestion 5 (Verbal Inhibition): The word *stuck* was substituted for the words *welded* and *clamped;* the word *mouth* was substituted for the word *larynx;* and the phrase *stuck together* was substituted for the phrase *in a vise.*

[4] The error mean squares used in the Duncan tests were computed from one-way analyses of variance performed on the test suggestions and the subjective reports.

TABLE 1

SUMMARY OF ANALYSES OF VARIANCE FOR TEST SUGGESTIONS AND SUBJECTIVE REPORTS

Source	*df*	Test Suggestions		Subjective Involvement		Verbalized Resistance[a]		
		MS	*F*	*MS*	*F*	*df*	*MS*	*F*
Sex (A)	1	.25	1.72	.264	1.86	1	.634	2.73
Age Groups (B)	9	1.56	10.76***	1.52	10.70***	8	1.607	6.93***
A × B	9	.19	1.31	.39	2.75**	8	.467	2.01*
Error	704	.145		.142		651	.232	
Total	723					668		

Note.—The Walker-Lev approximation method for unequal subclasses was used in these analyses.

[a] The 6- and 7-year-olds are not included in the Verbalized Resistance analysis, since in many instances subjects at these age levels gave answers which indicated that they did not understand this question.

* $p < .05$.
** $p < .01$.
*** $p < .001$.

groups on the test suggestions and on the subjective reports.

Objective scores. Duncan range test, applied to the mean scores on the total eight test suggestions (Table 2, Column 4), showed the following: subjects between 6 and 12 years of age showed significantly higher scores than subjects of 14 years and older; subjects of ages 8–10 obtained the highest scores; and the scores of subjects of 14 years and above did not differ significantly from each other. These relationships can be observed visually by inspection of Objective scores in Figure 1 which show increasing responsiveness from ages 6–8, maximal response levels at ages 8–10, gradually decreasing responsiveness from ages 10–14, and a stable plateau of response from ages 14 and above.

Table 3 presents the mean scores on each of the eight test suggestions. As can be determined by inspection of this table, the mean scores on Test Suggestions 1, 2, 4, 7, and 8 followed the overall curvilinear pattern, that is, the means tended to increase from ages 6–8, were high at around ages 9 and 10, and then tended to decrease gradually from ages 10–14. Test Suggestions 3, 5, and 6 did not follow this pattern in that subjects of ages 6–7 scored as high as subjects of ages 8–10.

These results are in line with a series of previous reports, summarized by Weitzenhoffer (1953, 1959) and Tromator (1961),

TABLE 2

MEAN SCORES, STANDARD DEVIATIONS, AND RESULTS OF DUNCAN TESTS APPLIED TO TEST SUGGESTIONS AND SUBJECTIVE REPORTS

Age (1)	Year in school (2)	Number of subjects (3)			Eight test suggestions (4)		Subjective Involvement (5)		Verbalized Resistance (6)	
		Male	Female	Total	*M*	*SD*	*M*	*SD*	*M*	*SD*
6–7	1–2	35	20	55	4.54_{bc}	1.76	3.18_{cd}	1.78	—	—
8	3	43	36	79	5.36_{ab}	1.92	4.20_{b}	2.01	1.48_{c}	2.48
9	4	23	31	54	5.91_{a}	1.70	5.35_{a}	1.89	2.41_{b}	2.89
10	5	23	28	51	5.76_{a}	1.94	5.16_{a}	2.04	2.57_{b}	3.13
11	6	37	46	83	4.77_{bc}	2.30	4.36_{b}	2.34	3.18_{ab}	2.81
12	7	47	40	87	4.61_{c}	2.23	4.25_{b}	2.28	3.37_{ab}	2.58
13	8	44	31	75	4.24_{cd}	2.36	3.89_{bc}	2.28	3.84_{ab}	2.52
14–15	9–10	28	31	59	3.56_{de}	2.70	3.41_{c}	2.55	3.30_{ab}	2.73
16–17	11–12	29	31	60	3.55_{de}	2.38	3.23_{cd}	2.60	2.98_{ab}	2.76
18–22	13–15	79	42	121	3.53_{e}	2.28	2.60_{d}	2.28	3.50_{a}	2.46
Total		388	336	724	4.50	2.35	3.86	2.38	2.87	2.72

Note.—Means in the same column which do not contain a common letter in the subscript differ significantly from each other at the .05 level by Duncan test.

TABLE 3

MEAN SCORES ON TEST SUGGESTIONS

Test suggestion	Age									
	6–7	8	9	10	11	12	13	14–15	16–17	18–22
1. Arm Lowering	.454	.645	.759	.666	.783	.632	.680	.610	.550	.404
2. Arm Levitation	.254	.392	.518	.509	.469	.448	.426	.338	.416	.338
3. Hand Lock	.909	.848	.861	.872	.704	.810	.673	.602	.583	.674
4. Thirst "Hallucination"	.636	.727	.898	.814	.819	.655	.640	.576	.500	.558
5. Verbal Inhibition	.781	.759	.824	.755	.548	.586	.500	.440	.458	.495
6. Body Immobility	.818	.772	.814	.794	.560	.563	.453	.406	.375	.504
7. "Posthypnotic-Like" Response	.254	.405	.481	.549	.313	.402	.400	.305	.333	.347
8. Selective Amnesia	.436	.810	.759	.803	.578	.517	.466	.288	.333	.214

which appeared to indicate that the sexes do not differ significantly in response to suggestions of the type traditionally associated with the word hypnosis and children are more responsive than adults to suggestions of this type. Two additional findings merit comment:

1. Response to standardized test suggestions appears to be highest around ages 8–10. Children at these age levels obtained mean scores above 5 points on the criterion suggestions. It should be noted, however, that adults, in general, also obtain mean scores above 5 points on the same test suggestions after they have received either explicit instructions designed to produce positive motivation to perform maximally on the suggested tasks or a formal trance induction

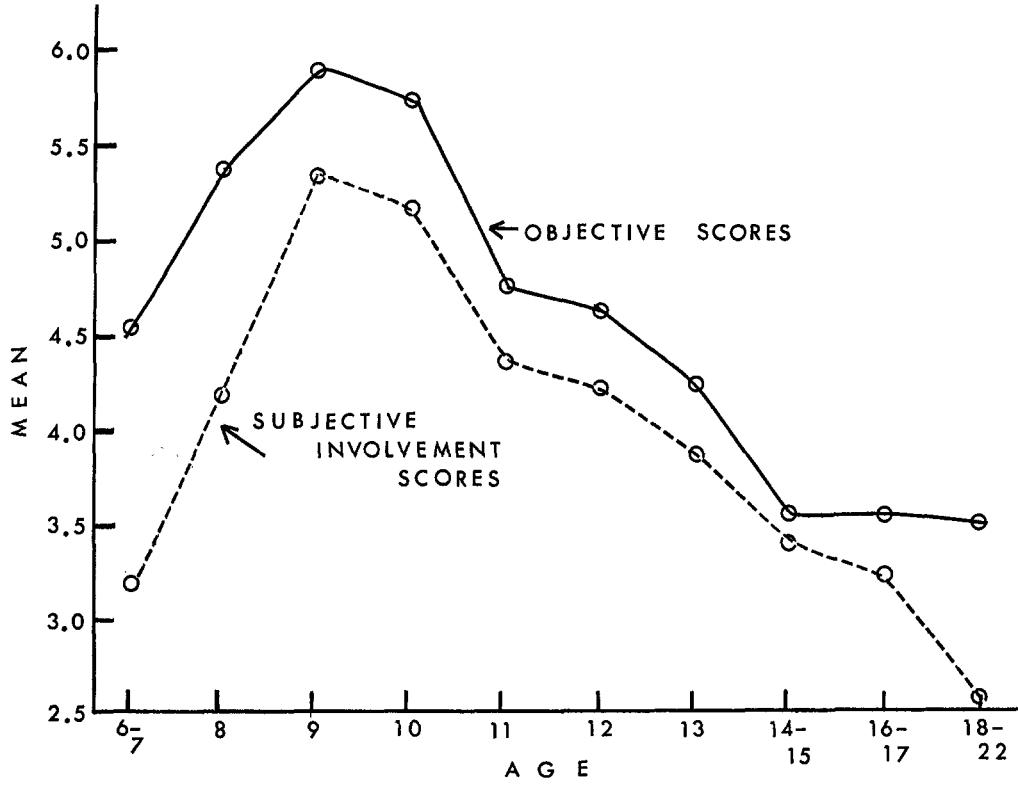

FIG. 1. Mean Objective scores (test suggestions passed) and Subjective Involvement scores (test suggestions "felt") as a function of age.

procedure consisting of eye fixation on the blinking light of a metronome and repetitive suggestions of relaxation, drowsiness, and sleep (Barber & Calverley, 1962, in press). It thus appears that the high level of "suggestibility" manifested under ordinary conditions by children of ages 8–10 can also be manifested by adults, provided that the adults have received either explicit motivating instructions or a formal trance induction.

2. The "adult" level of response to the standardized test suggestions is apparently attained at approximately 14–15 years of age. Subjects of ages 14–15 did not differ in "suggestibility" from subjects of ages 18–22. The mean score on the standardized suggestions of the 14–15 age group was also comparable to the mean scores attained on the same test suggestions by college students and graduate students participating in a previous investigation (Barber & Glass, 1962).

Subjective Involvement. Duncan test applied to the mean scores on Question 1 indicated that subjects of ages 8–12 showed higher Subjective Involvement scores (stating that they "actually felt" more of the suggested effects) than subjects of ages 14–22, and subjects of ages 9 and 10 showed the highest scores of all (see Table 2, Column 5). As can be determined by inspection of Figure 1, subjects of ages 9–17 showed a close correspondence between their Objective scores and their Subjective Involvement scores but subjects at the youngest age levels (ages 6–8) and at the oldest age levels (ages 18–22) showed a discrepancy between objectively scored responses and Subjective Involvement scores; the youngest and oldest subjects on the average passed one test suggestion which they said that they did not "actually feel" but "went along with to follow instructions or to please the experimenter." The findings with respect to the youngest age group are in line with data obtained by London (1962b) indicating that children of ages 6–8 tend to manifest less subjective involvement in the suggested effects than subjects of ages 9–16. The findings with respect to the oldest group are in line with recent studies (Barber & Calverley, 1962, in press) which found that college students of ages 18–22, who were given the same eight test suggestions in the same way as in the present experiment, showed a discrepancy of about 1 point between objectively scored responses and Subjective Involvement scores.

Table 1 shows a significant Sex × Age Groups interaction on Subjective Involvement. A clear pattern was not discerned in this interaction: At age 10 the boys stated that they "felt" more of the suggested effects than the girls; at ages 12, 14–15, and 18–22, the girls stated that they "felt" more of the suggested effects than the boys.

Verbalized Resistance. Duncan range test applied to the mean scores on Question 2 indicated that the youngest subjects (ages 8–10) stated that they "tried to resist" a significantly smaller number of the test suggestions than the oldest subjects (ages 18–22) (see Table 2, Column 6). Table 4 indicates that: all age groups showed highly significant negative correlations ranging from −.36 to −.83 and averaging −.54 between Objective scores and Verbalized Resistance scores; and all age groups showed highly significant negative correlations ranging from −.31 to −.66 and averaging −.48 between Subjective Involvement scores and Verbalized Resistance scores. Fisher z transformations showed significant differences ($p < .02$) between age groups on both sets of correlations.

There was a significant Sex × Age Groups interaction on Verbalized Resistance (see Table 1). This interaction did not appear amenable to a clear interpretation: At ages 16–17, the girls stated that they "tried to

TABLE 4

PEARSON CORRELATION COEFFICIENTS

Age	N	Objective scores-Verbalized Resistance	Subjective Involvement-Verbalized Resistance
8	79	−.39	−.33
9	54	−.44	−.60
10	51	−.68	−.66
11	83	−.68	−.63
12	87	−.42	−.47
13	75	−.36	−.34
14–15	59	−.83	−.59
16–17	60	−.72	−.52
18–22	121	−.37	−.31
Average	669	−.54	−.48

Note.—All correlations are significant beyond the .01 level.

resist" more of the test suggestions than the boys; at ages 12, 13, 14–15, and 18–22, the boys stated that they "tried to resist" more than the girls.

The major findings with respect to subjective reports can be summarized as follows:

1. In general, a close correspondence was found between objectively scored responses to the test suggestions and Subjective Involvement scores; however, subjects in the youngest age group (ages 6–8) and in the oldest age group (ages 18–22) showed a discrepancy between their Objective scores and Subjective Involvement scores, stating that they "went along with" but did not "actually feel" some of the test suggestions which they passed.

2. To the extent that reliance can be placed on subjective reports, it appears that some of the variance in "suggestibility" can be accounted for by differences in the degree to which the various age groups tried to resist the suggested effects; the less the subjects tried to resist, the higher their Objective scores on the test suggestions and the higher their subjective involvement in the suggested effects.

Retest Findings

The three groups retested on the Barber Suggestibility Scale after a 6-week interval (12 subjects of age 7, 22 subjects of age 10, and 29 subjects of ages 18–22) showed significant correlations of .62, .66, and .82, respectively, between test-retest scores. Although there appeared to be a trend toward greater reliability in response on the part of the older subjects, Fisher z transformation indicated that the three correlation coefficients did not differ significantly ($\chi^2 = 2.03$, $df = 2$, $p > .30$). The three groups maintained their relative ranks on the retest: subjects of age 10 showed the highest mean score (5.18); subjects of age 7 showed the next highest mean score (4.58) and the older subjects of ages 18–22 showed the smallest mean score (3.26).

Limitations of the Investigation and Suggestions for Further Research

The subjects in this investigation were white Americans of middle-class background. Whether the findings apply to other cultures and to other subgroups in the American culture can be determined only by further research.

The experimenter defined the procedure to the subjects (and to the teachers and school administrators) as a "test of imagination." To what extent the children and adult subjects defined the procedure to themselves as hypnosis and to what extent their private definition of the situation influenced their responses is not known. Further studies are needed to clarify this point.

A formal trance induction procedure was not used in this investigation. Further, the experimenter did not attempt to form a friendly or close relationship with the subjects and did not attempt to motivate the subjects to perform maximally on the suggested tasks. These variables should be manipulated experimentally in further research. Three considerations are pertinent:

1. Recent experiments (Barber & Calverley, 1962, in press; Barber & Glass, 1962; Weitzenhoffer & Sjoberg, 1961) demonstrate that a standardized trance induction procedure which includes eye fixation and repetitive suggestions of relaxation, drowsiness, and sleep is effective in enhancing suggestibility in adults. Does such a trance induction procedure also produce heightened response to test suggestions in children? An affirmative answer to this question cannot be assumed; children may differ from adults in that they show no change in suggestibility after a formal trance induction.

2. Recent experiments (Barber & Calverley, 1962, in press) also demonstrate that adults show enhanced response to test suggestions when given explicit task motivating instructions. It appears likely that suggestibility in children can also be enhanced by instructions designed to produce positive motivation to perform well on suggested tasks. However, it cannot be assumed that the same instructions which are task motivating for adults are also task motivating for children. Further studies should determine what type of instructions are effective in motivating children to perform optimally on test suggestions.

3. There is evidence to indicate that suggestibility in adults is affected by the nature

of the interpersonal relationship between the subject and the experimenter (Barber, 1957b, 1958, 1961, 1962a, 1962b, 1962c, 1963, in press). It appears likely that children also show variations in suggestibility when tested by experimenters with whom they do and do not have a close relationship. Carefully controlled studies are needed to test this point.

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